CLAIMS SUMMARY DOCUMENT

1. (Currently amended) A progressive 3-D mesh information coding method comprising the steps of:

(a) dividing a 3-D mesh into a plurality of mesh components, wherein each of the mesh components corresponds to a different partition of the 3-D mesh;

(b) coding each of the plurality of mesh components, wherein the plurality of coded mesh components are capable of being decoded and incrementally reproduced as unit mesh parts of the 3-D mesh; and

(c) multiplexing the plurality of coded mesh components into a compressed bit stream and transmitting the compressed bit stream.

2. (Currently amended) The A progressive 3-D mesh information coding method as claimed in claim 1 comprising the steps of:

(a) dividing a 3-D mesh into a plurality of mesh components, wherein each of the mesh components corresponds to a different partition of the 3-D mesh;

(b) coding each of the plurality of mesh components; and

(c) multiplexing the plurality of coded mesh components into a compressed bit stream and transmitting the compressed bit stream, wherein each of the plurality of mesh components includes at least connectivity information, geometry information and photometry information which are necessary to reconstruct the coded mesh components themselves.

3. (Previously amended) The progressive 3-D mesh information coding method as claimed in claim 1, wherein the step (a) comprises the substeps of:

(a1) extracting one or more mesh object layers from a 3-D mesh; and

(a2) dividing the one or more mesh object layers each into the plurality of mesh components.

4. (Original) The progressive 3-D mesh information coding method as claimed in claim 1, wherein in the step (b), each of the plurality of mesh components is coded, and

information generated while a mesh component is coded is reused in the process for coding a mesh component which has not yet been coded.

5. (Currently amended) A progressive 3-D mesh information decoding method comprising the steps of:

(a) dividing a transmitted bit stream into a plurality of coded mesh components, wherein the plurality of mesh components are capable of being incrementally reproduced as unit mesh parts of a 3-D mesh;

(b) decoding each of the plurality of coded mesh components; and

(c) reconstructing a the 3-D mesh by synthesizing the plurality of decoded mesh components.

6. (Previously amended) The progressive 3-D mesh information decoding method as claimed in claim 5, wherein the step (a) comprises the substeps of:

(a1) classifying the transmitted bit stream into one or more decoded mesh object layers; and

(a2) dividing each of the one or more decoded mesh object layers into a plurality of mesh components.

7. (Original) The progressive 3-D mesh information decoding method as claimed in claim 5, wherein in the step (b), each of the plurality of coded mesh components is decoded, and information generated while a mesh component is decoded is reused in the process for decoding a mesh component which has not yet been decoded.

8. (Canceled)

9. (Previously amended) A progressive 3-D mesh information coding/decoding method comprising the steps of:

(a) extracting one or more independent mesh object layers from a 3-D mesh;

(b) independently coding and transmitting the one or more mesh object layers;

(c) obtaining one or more independent mesh object layers by decoding one or more of the independently coded and transmitted mesh object layers; and

(d) reconstructing the original 3-D mesh by collecting the independent mesh object layers and removing redundant information.

10. (Currently amended) A progressive 3-D mesh information coding/decoding method comprising the steps of:

(a) extracting one or more mesh object layers from a 3-D mesh and dividing each of the mesh object layers into a plurality of independent mesh components;

(b) independently coding and transmitting the plurality of mesh components for each of the one or more mesh object layers, wherein each of the plurality of coded mesh components include information necessary such that, when decoded, is capable of being reproduced as a unit mesh part of the 3-D mesh; and

(c) obtaining a plurality of independent mesh components by decoding the plurality of independently coded and transmitted mesh components.

11. (Original) The progressive 3-D mesh information coding/decoding method as claimed in claim 10, further comprising the step of (d) reconstructing the original 3-D mesh by collecting the independent mesh components and removing redundant information between adjacent mesh components, after step (c).

12. (Currently amended) A progressive 3-D mesh information coding apparatus comprising:

a 3-D data analyzer for receiving a 3-D mesh and reconstructing the input 3-D mesh into a plurality of mesh components;

a plurality of component coders for coding the plurality of mesh components; and

a multiplexer for multiplexing the plurality of coded mesh components into a compressed bit stream, wherein the plurality of coded mesh components are capable of being decoded and incrementally reproduced as unit mesh parts of the 3-D mesh.

13. (Previously amended) The progressive 3-D mesh information coding apparatus as claimed in claim 12, wherein the 3-D data analyzer comprises:

a 3-D mesh object layer analyzer for dividing the input 3-D mesh into one or more mesh object layers; and

a plurality of mesh component analyzers for again dividing each of one or more mesh object layers into a plurality of mesh components.

14. (Original) The progressive 3-D mesh information coding apparatus as claimed in claim 12, wherein when the plurality of component coders code the plurality of mesh components, a component coder which has not yet performed coding performs coding using coding information generated in a component coder which has already performed coding.

15. (Currently amended) A progressive 3-D mesh information decoding apparatus for progressively decoding a bit stream decoded by and transmitted from a progressive 3-D mesh information coding apparatus, comprising:

a demultiplexer for dividing the transmitted bit stream into a plurality of coded mesh components;

a plurality of component decoders for decoding the plurality of coded mesh components, wherein the plurality of decoded mesh components are capable of being incrementally reproduced as unit mesh parts of a 3-D mesh; and

a 3-D data synthesizer for synthesizing the plurality of decoded mesh components to reconstruct a the 3-D mesh.

16. (Original) The progressive 3-D mesh information decoding apparatus as claimed in claim 15, wherein when the plurality of component decoders decode the plurality of mesh components, a component decoder which has not yet performed decoding performs decoding using decoding information generated in a component decoder which has already performed decoding.

17. (Canceled)

18. (Currently amended) An independent and A progressive 3-D mesh information coding/decoding apparatus as claimed in claim 17, further comprising:

a 3-D mesh object layer analyzer for receiving a 3-D mesh and dividing an input 3-D mesh into one or more independent mesh object layers;

one or more mesh object layer coders for independently coding and transmitting one or more mesh object layers;

one or more mesh object layer decoders for decoding one or more independent mesh object layers which are independently coded and transmitted, to obtain one or more independent mesh object layers; and

a 3-D mesh object layer synthesizer for synthesizing one or more independent mesh object layers and removing redundant information to reconstruct the original 3-D mesh.

19. (Currently amended) A progressive 3-D mesh information coding/decoding apparatus comprising:

a 3-D mesh object layer analyzer for receiving a 3-D mesh, dividing an input 3-D mesh into one or more mesh object layers, and again dividing each mesh object layer into a plurality of independent mesh components;

a plurality of mesh component coders for independently coding and transmitting the plurality of independent mesh components, wherein each of the plurality of coded mesh components include information necessary such that, when decoded, is capable of being rendered as a unit mesh part of the 3-D mesh; and

a plurality of mesh component decoders for decoding the plurality of mesh components which are independently coded and transmitted, to obtain a plurality of independent mesh components.

20. (Currently amended) An independent and A progressive 3-D mesh information coding/decoding apparatus as claimed in claim 19, further comprising:

a 3-D mesh object layer analyzer for receiving a 3-D mesh, dividing an input 3-D mesh into one or more mesh object layers, and again dividing each mesh object layer into a plurality of independent mesh components;

a plurality of mesh component coders for independently coding and transmitting the plurality of independent mesh components;

a plurality of mesh component decoders for decoding the plurality of mesh components which are independently coded and transmitted, to obtain a plurality of independent mesh components; and

a 3-D step data synthesizer for synthesizing the plurality of independent mesh components and removing redundant information between adjacent mesh components to reconstruct the original 3-D mesh.